TIMETAL® 10-2-3 Titanium Alloy (Ti-10V-2Fe-3Al), Aged Billet/Bar per ASTM 4987

Subcategory: Beta Titanium Alloy; Metal; Nonferrous Metal; Titanium Alloy

Component	Wt. %
Al	2.6 - 3.4
C	Max 0.05
Fe	1.6 - 2.2
H	Max 0.015
N	Max 0.05
O	Max 0.13
Ti	83 - 86.8
V	9 - 11

Material Notes:

Titanium content above is calculated as the remainder and may not reflect the actual range.

High-Strength Forging Alloy.

Industry Specifications: USA Aerospace: AMS 4987.

Features: A readily forgeable alloy that offers excellent combinations of strength, ductility, fracture toughness and high cycle fatigue strength. Typically used for critical aircraft structures, such as landing gear.

Typical heat treatment for this alloy: Solution heat treat: 28-56°C below beta transus for a minimum for 30 mins, then water quench. Aging heat treatment: 482-593°C for 8 hrs, air cool.

Data provided by TIMET.

Physical Properties	Metric	English	Comments
Density	4.65 g/cc	0.168 lb/in³	Typical
Mechanical Properties			
Tensile Strength, Ultimate	1040 MPa	151000 psi	Typical
Tensile Strength, Yield	970 MPa	141000 psi	Typical 0.2% Proof Stress

Elongation at Break	15 %	15 %	Typical
Reduction of Area	20 %	20 %	
Modulus of Elasticity	103 GPa	14900 ksi	Typical
Compressive Yield Strength	Min 924 MPa	Min 134000 psi	
Ultimate Bearing Strength	Min 1579 MPa	Min 229000 psi	e/D = 2.0
Ultimate Bearing Strength	Min 1303 MPa	Min 189000 psi	e/D = 1.5
Bearing Yield Strength	Min 1269 MPa	Min 184000 psi	e/D = 1.5
Bearing Yield Strength	Min 1462 MPa	Min 212000 psi	e/D = 2.0
Poisson's Ratio	0.32	0.32	
Fatigue Strength	780 MPa	113000 psi	Limit; test specifics not reported
Fracture Toughness	Min 88 MPa-m½	Min 80.1 ksi-in½	ST then Aged 8 hrs
Shear Modulus	42.1 GPa	6110 ksi	
Shear Strength	Min 538 MPa	Min 78000 psi	

Thermal Properties

CTE, linear 20°C	9.7 µm/m-°C	5.39 µin/in-°F	
Beta Transus	800 °C	1470 °F	

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistant format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error.